

Counterfeit Components still flood the supply chain in Continental USA. Daniel J. Cahill, Program Manager at Tachus Technologies Inc. July 19<sup>th</sup>, 2009

**Counterfeit Components and the threat imposed to the electronics and semiconductor industry.**

You're in a booth at an electronic components show in China. A professionally dressed woman comes up to you with a loose-leaf book and shows you pages full of labels from brand-name component manufacturers. She tells you her company can make very inexpensive battery packs and you get to choose the label the packs will carry. This scenario has happened and continues to happen to individuals from overseas that are in China for one reason or another. We are all aware that cloning product such as apparel is a widely accepted practice in China. However, this practice is now widespread in the consumer electronics industry which poses a far more serious threat to businesses in the United States and elsewhere that supply markets such as the defense sector and also the medical industry. Both these markets are particularly sensitive to receiving defective product as the defense sector services mission critical applications and the medical industry is very concerned with prolonging human life. Naturally other industries are also affected such as the automotive and commercial electronics. The practice of cloning or producing counterfeit components is most common in the Asia Pacific Rim particularly South East China. This is actually a global epidemic but mostly prevalent in China; 90% of the cloning activity is conducted in China. Counterfeit components are discovered in a number of ways, sometimes customers return excess inventory and the components may carry a Philips label for example, but it is not an actual component that Philips makes; the label is a copy and the component itself is not one that Philips manufactures. Other circumstances are more serious where a failure is detected, e.g. an electrical parametric failure and the part is RTV'd (returned to vendor) and the manufacturer discovers that the part is not theirs.

The current market for counterfeit parts has passed the billion-dollar mark which could be expressed as the size of Fairchild, a common semiconductor manufacturer. The problem is particularly acute in the distribution and brokerage industry. Arrow and Avnet, 2 large US distributors are seeing a slew of counterfeit parts, even in the military market. Detection is difficult because of the way the military uses parts. Components can sit on the shelves for months or years. The parts are shipped directly to depots and put on a shelf and not opened until needed- such as during a war situation. The military components come wrapped in paper so it can be difficult to take apart the packaging and inspect it all.

The counterfeit parts in the military market are often not discovered to be faulty until the part is needed in the field. Fairchild points to a case in Florida where two men were charged with supplying junk since 1995. "Their

bid was the lowest contract for hundreds of products,” according to Fairchild “The parts were put on shelves and when they were opened they didn’t work or were not the right quality -- the connectors were melting in the field.”

Fairchild further notes that counterfeit parts are currently causing difficulties in Iraq. “Sometimes the air conditioners are not working in the tent cities.” Asked what triggers Fairchild’s suspicion about counterfeiting, staff points to times when Avnet gets outbid by unknown companies. “We question it when we lose business to people we’ve never heard of. That’s counterfeit,”

According to Fairchild the counterfeit problem will continue growing as long as it’s profitable. “It’s like the drug problem. As long as you have people willing to buy it, and the profit margin is there, there will be people willing to sell it,”

As for government help from China, industry professionals don’t believe that recent crackdowns on component pirating will have much effect. China is trying to curb counterfeiting, but unfortunately the country is wired to copy things. For years the Europeans have been going over there saying we want you to make this product cheaper. So they copy it. It’s hard for them to sort out culturally that sometimes it’s ok to copy and sometimes it's not

The obsolescence of certain components and EOL (End of Life) also fuels the cloning epidemic. Another example of counterfeit components occurred in the medical electronics industry where a hearing aid manufacturer discovered some of the ICs required for voice amplification were defective and cloned. This was particularly disturbing as the actual hearing aid was the specific type to be embedded behind the ear. In other circumstances, the cloned component functions parametrically but the reliability and the longevity of the component is impaired but it is not known when the part shall fail. Lifecycle is basically a crap shoot.

There is light at the end of the tunnel nevertheless as the increased awareness of component counterfeiting has led to specific companies such as NJMET establishing specific tests and inspections to discover and quarantine suspect electronic components. Screening involves inspection, metallurgical testing using spectroscopy and parametric testing. This is an excellent service to both the military and medical industry in particular as testing laboratories can guarantee the authenticity of parts and isolate the cloned components. Firms such as NJMET are performing a great service to the electronics industry as a whole and protect the interests of US citizens.

## **Bibliography**

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